Intelligence 70 (2018) 12–21

Contents lists available at ScienceDirect

Intelligence

journal homepage: www.elsevier.com/locate/intell

Why do angry people overestimate their intelligence? Neuroticism as a suppressor of the association between Trait-Anger and subjectively assessed intelligence

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ARTICLE INFO

Keywords:
Anger
Intelligence
Narcissism
Neuroticism
Suppression

ABSTRACT

Trait-Anger and Neuroticism are substantially inter-correlated positively. However, there is some theoretical and empirical research that supports the notion that Trait-Anger and Neuroticism are influenced by several processes differentially. For instance, Trait-Anger is linked to optimistic bias, increased sense of control, approach motivation and high Narcissism. In contrast, Neuroticism correlates with pessimism, low sense of control, withdrawal motivation and low Narcissism. Building on these previous findings, we hypothesized that Trait-Anger and Neuroticism would be positively and negatively, respectively, associated with subjectively assessed intelligence (SAI). Furthermore, we expected that these two traits would act as mutual suppressors in predicting SAI. The results of two studies (*ns* = 303 and 225) supported our hypotheses. Trait-Anger was positively and Neuroticism negatively related to SAI, even after controlling for objective intelligence. These results are consistent with previous research which suggests that SAI is more substantially associated with personality than objective intelligence. Additionally, in study 2, we found that Narcissism mediated (partially) the relationship between Trait-Anger and SAI. In the discussion, we suggest that there might be two faces of Trait-Anger: one related to anxiety and one to overconfidence. Finally, a potential role of intelligence positive illusions in Trait-Anger is proposed.

1. Introduction

In the area of personality and cognition, one of the most consistent findings is the adverse influence of negative emotionality on various cognitive functions, including intelligence test performance. Traits that reflect tendencies toward negative emotions, e.g. neuroticism, anxiety, and depression have been all shown to be correlated negatively with cognitive ability test scores (Ackerman & Heggestad, 1997; Austin et al., 2002). Furthermore, substantial, negative correlations have been reported between these traits and self-assessed intelligence (SAI; Chamorro-Premuzic & Furnham, 2004; Chamorro-Premuzic, Moutafi, & Furnham, 2005).

In contrast to Neuroticism, Trait-Anger, another negative emotionality trait, has not been studied in the context of SAI. Although Trait-Anger has shown a weak, negative correlation with objective intelligence test scores (e.g. Austin et al., 2002), there is indirect evidence to suggest that angry people may not exhibit a corresponding tendency toward reporting relatively low SAI. Such a possibility is interesting, given that Neuroticism and Trait-Anger have been shown to correlate positively and substantially (Bettencourt, Talley, Benjamin, & Valentine, 2006; Ode, Robinson, & Wilkowski, 2008). Some recent findings suggest that anger may differ from other negatively valenced emotions, with respect to motivational and belief systems (e.g., Harmon-Jones et al., 2009; 2010; Lerner & Keltner, 2001), which, in turn, may influence SAI positively, rather than negatively.

In light of the above, the primary purpose of this investigation was to evaluate the potentially differential predictive validity of Neuroticism and Trait-Anger as predictors of SAI, controlling for individual differences in objective intelligence. Additionally, the role of Narcissism was examined as a hypothesized mediator of any effects between negative emotionality (Neuroticism and Trait-Anger) and SAI.

2. Differential processes underlying anger and neuroticism

Although Neuroticism and Trait-Anger are known to inter-correlate positively (Bettencourt, et al., 2006; Ode et al., 2008), there appear to

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https://doi.org/10.1016/j.intell.2018.07.003
Received 15 January 2018; Received in revised form 5 July 2018; Accepted 14 July 2018

be several contrasting processes that influence their manifestation. For example, optimistic bias, sense of control, approach motivation, and Narcissism. As we document below, all four of these processes may be expected to differentiate Neuroticism from Trait-Anger, and, furthermore, support hypotheses for the differential effects associated with Neuroticism and Trait-Anger as correlates of SAI.

An increasing amount of research suggests that the valence-based approach to the distinction between positive and negative affect fails to explain many important phenomena, e.g. how negative and positive emotions influence cognition (Gable, Pool & Harmon-Jones, 2015; Lerner & Keltner, 2001). It has been suggested that additional features of emotions should be considered in the context of cognitive processing, such as motivational intensity (Gable, et al., 2015) or emotion's appraisal theme (Lerner & Keltner, 2001). Beyond the valence-based distinction, anger has been shown recently to differ substantially from other negative emotions; in some cases, anger appears to behave in a manner similar to positive affect.

For example, one of the counterintuitive findings concerns the positive association between anger (trait and state) and optimism. Across a series of studies, Lerner and Keltner (2001) tested the hypothesis that each emotion has its own unique appraisal theme, which influences subsequent judgment and other cognitive processes. Correspondingly, Lerner and Keltner (2001) differentiated the cognitive dimensions underlying different emotions. Importantly, their analysis revealed that emotions of the same valence differ across multiple appraisal dimensions. Most noteworthy, fear and anger, although both negative, differ in terms of the certainty and control dimensions. Additionally, whereas a sense of situational control and uncertainty defines fear, a sense of individual control and certainty defines anger. Lerner and Keltner (2001) supported further this concept by showing that dispositional anger, contrary to dispositional fear, predicted more frequent risk-seeking choices and a more optimistic attitude toward future life events. Interestingly, in these studies, trait anger was associated with a correlation pattern similar to dispositional happiness, rather than fear. Consequently, it may be suggested that the valence approach to emotions fails to explain these results.

Finally, it should be noted that the opposing patterns of risk perception and optimism emerged not only for dispositional traits, but also experimentally induced states of fear and anger. Importantly, appraisal tendencies accounted for these effects: appraisals of certainty and control moderated and (in the case of control) mediated the emotion effects. Consistent with the Lerner and Keltner's (2001), there are studies linking emotions with goals planning. In a recent investigation, Maglio, Gollwitzer and Oettingen (2014) tested the role of emotions in the formation and execution of plans. Specifically, the authors hypothesized that anger and sadness would differentially impact planning and the implementation of plans, on the theoretical basis that anger and sadness possess distinct cognitive appraisal patterns. Similar to Lerner and Keltner (2001), Maglio et al. (2014) assumed that anger and sadness differ with respect to sense of control. Specifically, whereas sadness is characterized by little control to respond, anger is characterized by a strong sense of control. Consequently, Maglio et al. (2014) predicted that experiencing anger should more effectively influence implementation intentions, in comparison to people experiencing sadness. Indeed, the authors confirmed their hypothesis: anger was related to a greater sense of control and led to the formation of more plans for goal-directed behavior and faster execution of real behavior as prescribed by predetermined plans.

In addition to a sense of control, another characteristic of anger that may have consequences for SAI is approach motivation. Based on their review of the literature, Carver and Harmon-Jones (2009) suggested that anger, in contrast to other negative emotions, such as anxiety, relates to an appetitive and/or behavioral approach system (BAS). One source of evidence supporting this conclusion is research on asymmetrical frontal activity. Numerous studies have revealed that approach motivation is associated with relative left frontal activity, whereas withdrawal motivation is linked to relative right frontal activity (Coan & Allen, 2004). Consequently, both trait and state anger were shown to correlate with greater left frontal activity and lesser right frontal activity (Harmon-Jones & Allen, 1998). This finding seems to have surprising consequences, since other studies by Harmon-Jones and colleagues (Harmon-Jones & Harmon-Jones, 2010; Harmon-Jones et al., 2009) revealed that anger is associated with both negative affect (NA) and positive affect (PA). The former result might be explained by the fact that NA includes items referring to anger, however, the correlation of anger with PA requires further consideration. Harmon-Jones and colleagues (Harmon-Jones & Harmon-Jones, 2010; Harmon-Jones et al., 2009) pointed that in the development of the Positive and Negative Affect Schedule (PANAS), Watson, Clark, and Tellegen (1988) used factor analysis in order to select items with a large loading on the one factor and a near-zero loading on the other factor. This approach resulted in elimination of items from PA that measure pure positivity and retention of items that measure additional aspects, such as approach motivation (items such as *enthusiastic, excited, strong*). Consistent with the findings on anger and BAS (Carver & Harmon-Jones, 2009), Harmon-Jones et al. (2009) found that anger-evoking situations produced higher levels of both anger and PA, in comparison to neutral conditions without emotion induction. Moreover, they found that PA was positively correlated with anger. The size of the correlation between PA and anger increased, controlling statistically for happiness. Harmon-Jones et al. (2009) concluded that PA includes two dimensions: positive emotionality and approach motivation. In summary, anger may be described as an approach-oriented, but negatively-valenced, emotion.

In contrast to anger, Neuroticism has been found to correlate positively with Behavioral Inhibition System (BIS) and negative affect and negatively with BAS and PA (Watson, 2000). Moreover, Neuroticism has been linked with right frontal activity, suggesting a tendency toward withdrawal motivation (e.g. McNaughton, DeYoung, & Corr, 2016). Again, this pattern of findings is all the more interesting, given the substantial, positive correlation between Neuroticism and Trait-Anger (Bettencourt, et al., 2006; Ode et al., 2008).

Finally, a trait that has shown an interesting pattern of correlations with Trait-Anger and Neuroticism is Narcissism. However, it needs to be acknowledged that recent studies suggest that there might be two types of Narcissism: Grandiose and Vulnerable (Miller et al., 2011). The former is characterized by an inflated positive self-image, high self esteem, exhibitionism, attitudes of entitlement, a tendency toward exploitativeness, self-assuredness, and the need to be admired by others, whereas Vulnerable Narcissism is characterized by hypersensitivity, vulnerability, low sense of self-worth, defensiveness, and insecurity (Miller et al., 2011). Among the two types of Narcissism, Grandiose Narcissism has shown differential correlations with Trait-Anger and Neuroticism: positive and negative, respectively (Miller et al., 2011).

Processes that differentiate Trait-Anger from Neuroticism also seem to have different influence on SAI. Empirical investigations have shown that optimism, happiness and positive affect are all associated with a general tendency toward self-enhancement, including overestimation of one's intelligence (e.g. Dufner et al., 2012). Moreover, many researchers point that the self-enhancement is usually observed with respect to agentic traits (e.g., competence, intelligence, uniqueness) rather than on communal traits (e.g., kindness, helpfulness; Brummelman, Thomaes, & Sedikides, 2016). This may suggest that the increased sense of control, a characteristic of agency, is likely to be associated with SAI positively. Finally, it has been shown repeatedly that grandiose narcissists tend to overestimate their own cognitive abilities (Gabriel, Critelli & Ee, 1994; Dufner et al., 2012; Zajenkowski & Czarna, 2015).

3. Subjectively assessed intelligence

Standardized intelligence tests are regarded as an objective method with a well-established methodology and substantial predictive validity